Ambiguity and Architectural Questions

Group Assignment

Homework Assignment:

You are the architect. For the following general product description, write down questions you will ask the analysts. These are to clarify the “requirements” and add to them. Write down as many as you can think of.

You should have at least 20 questions.

The system is a traffic signal control system. It detects oncoming traffic and changes traffic signals to optimize traffic flow. The vision behind this system is that it costs both time and energy to start and stop cars. If cars can go through traffic signals with minimal slowing, it saves time and fuel, and reduces emissions. There may be safety benefits as well. And people are happier because they are stuck in traffic less.

Here's what we know (so far):

- It’s an integrated system, so traffic signals should probably coordinate with each other.
- We want to be able to detect the speed and volume of oncoming traffic.
- We calculate when to change signals so that flow is optimized. This will probably take AI as well.

Notes:

- Each question should be expressed as a full sentence.
- Make sure your writing is clear and easy to understand.
- Although the focus is on requirements, you will find yourself drifting into the solution space at times. That’s fine. Remember, the spaces interconnect!

Part 1:

Submit the list of the questions as described above. They do not have to be in any particular order (yet).

Part 2:

Organize the questions along two dimensions:

- Some logical grouping of topics
- Time when the questions need to be answered.

We will not tell you what the logical groupings are; part of the assignment is for you to group them in some way that makes sense to you. It might be by features, quality attributes, logical components, or even combinations of them.

The easiest way to organize them is to get a bunch of yellow sticky notes and write a question on a sticky note. Then organize them on a spiderweb drawn on a white board. The radii going out are the logical categories, and distance from the center is time (the middle is “now”.) You may have some questions that fall between two categories; just place them where it makes sense.

Then take a picture of the spiderweb and submit it.

Part 3:

Designate five questions that are particularly important. For the five you picked, consider why you think each one is a particularly important one for the system. For example, a particular question might completely change the fundamental architecture. Or the question may have very significant effects on the end users. There may be other reasons a question is important.

For each of the five, answer the following questions:

1. WHY is this question important?
2. WHOM does this question impact?
3. WHEN can this question be answered? (when in the project lifecycle, such as early analysis, design, etc.)
4. HOW does the answer to this question impact the architecture of the system?

In addition to turning the material in, prepare a **5 minute** presentation to the class of your questions.